CROWCHILD

THE CITY OF CALGARY
PLANNING DEPARTMENT

JULY 1983

Phase 4
Area Structure Plan

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EXECUTIVE SUMMARY

The Crowchild 4 Area Structure Plan encompasses 606 hectares (1497 acres) of land in the northwest sector of the City, and is part of a larger study area of 862 hectares (2130 acres) which includes adjacent land within the Transportation and Utility Corridor. The Area Structure Plan provides for the eventuality that these lands may someday be declared "surplus" to the Corridor requirements, and will thus become available for urban development and be annexed to the City.

Development in Crowchild 4 will be predominantly residential, in accordance with the land use policies that have been approved within the Calgary General Municipal Plan. Associated land uses, including institutional, retail and office, will be interspersed throughout. The lands between Beddington Trail and West Nose Creek, and the major ravines crossing the area, will be the principal components of the open space system.

The Area Structure Plan prescribes an average residential density in the range of 17.0 to 20.0 units per gross residential hectare (6.9 to 8.1 units per gross residential acre) within each of the three development cells. At these densities, the Crowchild 4 study area could accommodate a population of between 40,600 and 47,600 residents when fully developed, of which between 29,400 and 34,600 would live within the present city limits.

Roads and services will be extended, as required, from subdivisions currently under development to the south. The sequence of development will be generally from south to north and from east to west, depending on the sequence of development within the Crowchild 3 area to the south, and on the consequent availability of services. Once the population of the area reaches 8,000 the capacity of the transportation system will start to become overburdened, and increasing congestion can be anticipated.

In the event that any or all of the lands within the T.U.C. encompassed by the Crowchild 4 study area are annexed to the city at some future date, they can be incorporated formally into this Area Structure Plan through an amendment. On the other hand, should these lands not be annexed by the time development of the area is ready to commence, the Plan may have to be amended in order to revise collector road configurations and joint use site requirements.

MAP No. 1

CROWCHILD 4

TITLE
STUDY AREA LOCATION

LEGEND

STUDY AREA

AREA STRUCTURE PLAN

DATE

THE CITY OF CALGARY
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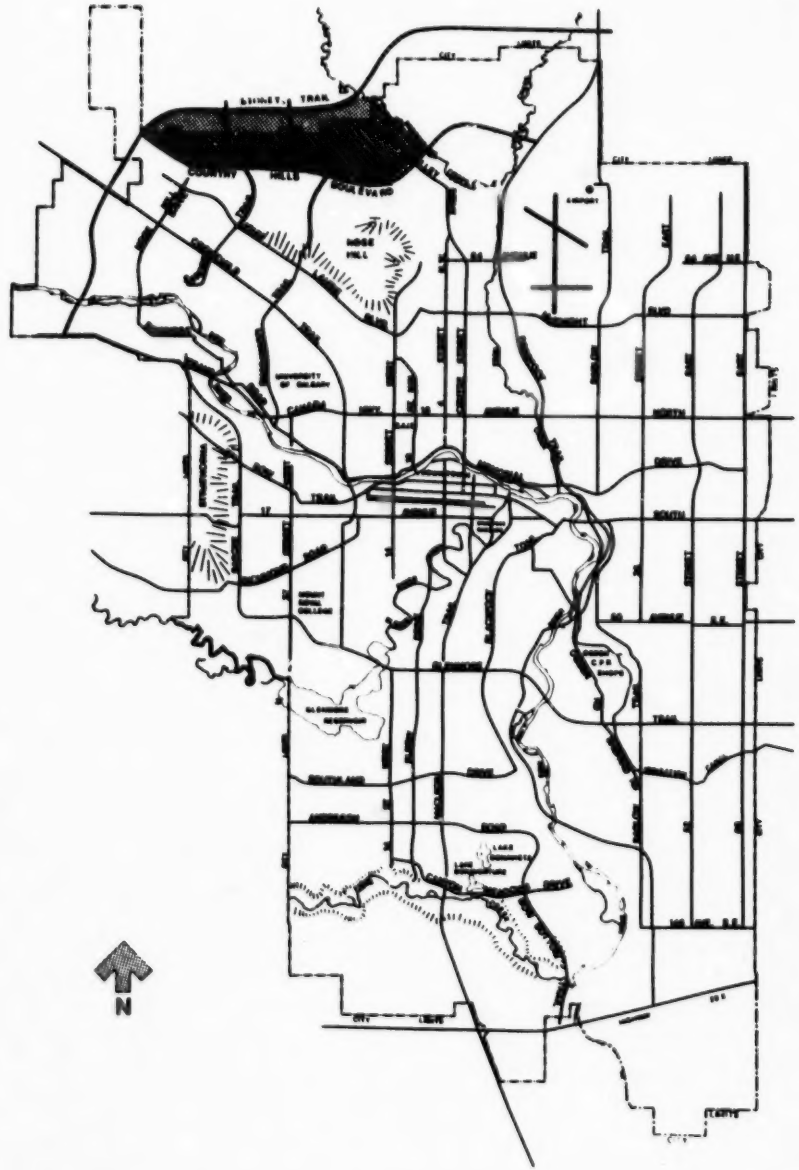


PART 1 BACKGROUND AND SUPPORTING INFORMATION

1. INTRODUCTION

1.1 Background

On November 23, 1981, City Council approved the recommendations of Clause OD81-102 of the Standing Policy Committee on Operations and Development concerning the preparation of an area structure plan for the Crowchild 4 area. The Crowchild 4 Area Structure Plan was thereby included as part of the Planning Department's 1982 work program.

The major landowners in Crowchild 4 subsequently retained consultants to prepare a document entitled "Design Brief - Crowchild 4 Area Structure Plan", which was submitted to the Planning Department in June 1982. This report was accepted as primary input to the preparation of this Area Structure Plan.

1.2 Study Area

The Crowchild 4 study area encompasses 862 hectares (2130 acres) in the northwest quadrant of the City, as shown on Map 1. It is bounded on the north and west by the proposed Stoney Trail (Northwest By-pass) within the provincial Transportation and Utility Corridor (T.U.C.), on the northeast by West Nose Creek, and on the south by the proposed Country Hills Boulevard. It includes portions of Sections 18, 19, 20, 21 and 29 of Township 25-1-W5, and portions of Sections 13, 14, 22, 23 and 24 of Township 25-2-W5, as shown on Map 2.

Alberta Environment has indicated that the 256 hectares (633 acres) of land within the T.U.C., as currently delineated, will likely be "surplus" to the Corridor requirements and may be released to accommodate urban development. The general location and extent of these "surplus" lands is shown on Map 2.

The land use and servicing concepts developed for the study area incorporate the "surplus" corridor lands into the overall plan. The plan provides for the eventuality that these "surplus" lands may someday be annexed to the city. Should these lands not be made available for urban development, this Area Structure Plan would need to be amended to revise the land use plan.

For the purposes of this document, only the portion of the study area located within the current city boundaries, as shown on the various maps, is subject to the statutory provisions of this Area Structure Plan. The Area Structure Plan thus encompasses approximately 606 hectares (1497 acres) in total.

For planning purposes the study area has been divided into three development cells, as indicated on Map 2. Cell A extends from West Nose Creek to the future alignment of Shaganappi Trail, Cell B extends from Shaganappi Trail to the future alignment of Sarcee Trail, and Cell C extends from Sarcee Trail to the western limits of the study area at Stoney Trail.

2. POLICY CONTEXT

2.1 Calgary Regional Plan

The Calgary Regional Plan, 1971 was amended in September, 1979 to redesignate both the western half and the easternmost end of Crowchild 4 to "High Density", a designation which permits urban land uses at urban densities. On November 12, 1982 the Calgary Regional Planning Commission adopted a further amendment to the Regional Plan to redesignate the balance of the A.S.P. area to "High Density". That amendment received Ministerial ratification in January, 1983.

2.2 Calgary General Municipal Plan

The General Plan is the principal statutory planning document governing land use in the Crowchild 4 A.S.P.

The land use concepts established by the Crowchild 2 and Beddington Policy Reports, together with additional work carried out as part of the First Annual Review, resulted in an amendment to the "Strategy" section of the Calgary General Municipal Plan. That amendment, approved by Council on February 11, 1980, established a policy context for the "Northwest Sector", which encompasses both the Crowchild 3 A.S.P. and Crowchild 4 A.S.P. Figure 2.1.3 of the General Plan identifies these two areas as "additional new areas for general urban development."

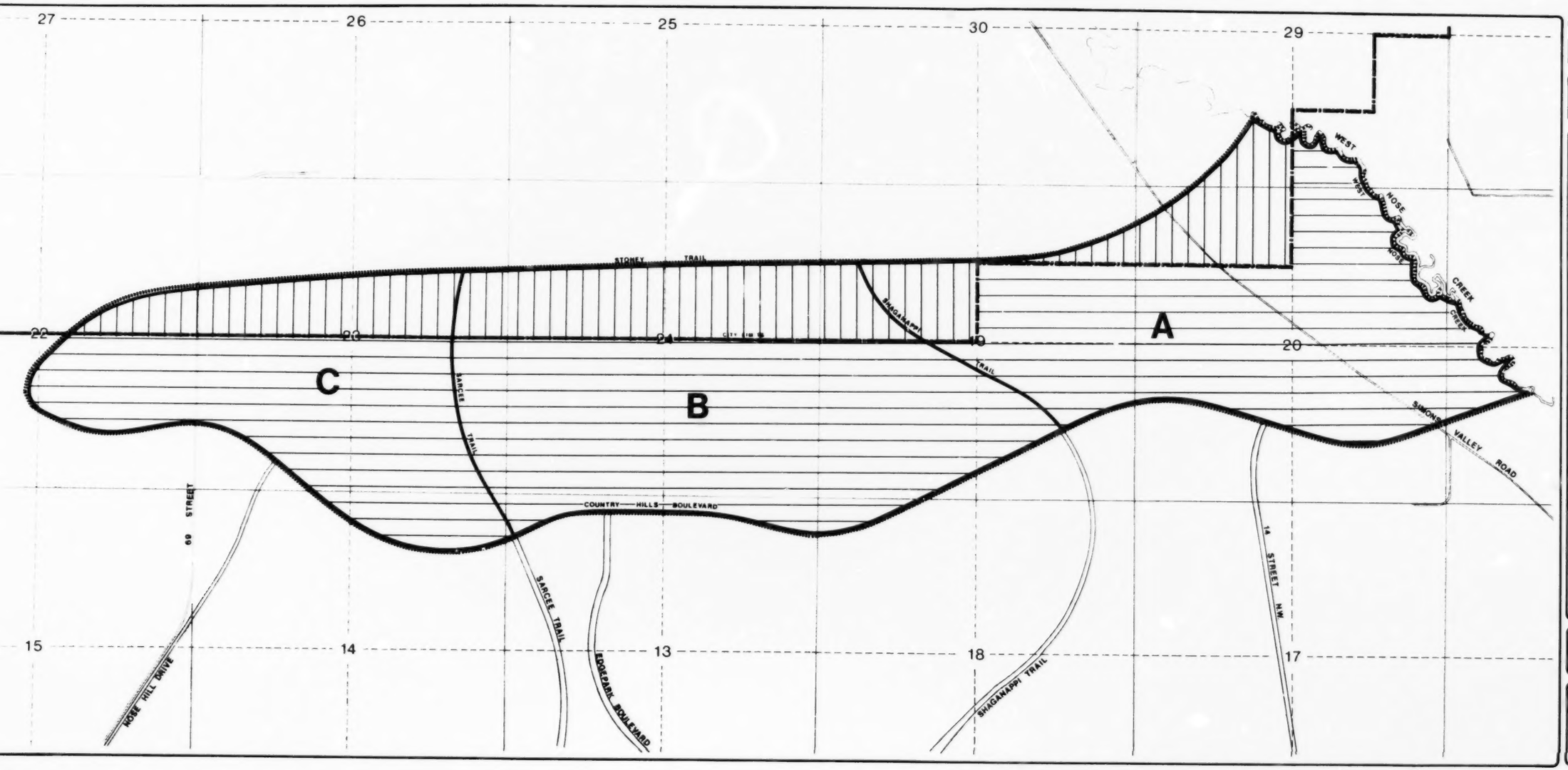
The General Plan states that the development of the Northwest Sector is constrained by the limited downstream capacity of the transportation system. The existing system can accommodate no more than 15,000 residents in this sector without incurring severe congestion on the major roads and expressways. However, planned improvements such as Northwest L.R.T., the Beddington Expressway and improvements to Crowchild Trail have the potential to increase that capacity by an additional 15,000 to 20,000 people. The thresholds established in the General Plan have been reviewed by the City's Transportation Department, and are dealt with in Section 5 of this document.

The General Plan's table entitled "Areas Considered Suitable for Area Structure and Area Redevelopment Plans" was amended on January 18, 1982 to include Crowchild 4 on that list.

2.3 Crowchild 3 Area Structure Plan

The Crowchild 3 A.S.P., which encompasses an area of 1,270 hectares (3,140 acres) lying immediately to the south of Crowchild 4, was adopted by City Council in September, 1979. This Plan, in which residential land use predominates, contains two recommendations of particular significance to the Crowchild 4 A.S.P.

The first is for a regional recreation/education centre to be located on a site of 8.1 hectares (20 acres) in the northwest quadrant of the intersection of Shaganappi Trail and Country Hills Boulevard, within the Crowchild 4 A.S.P. study area.



CROWCHILD 4

DEVELOPMENT CELLS

- CELL BOUNDARY
- A DEVELOPMENT CELLS
- 'SURPLUS' TRANSPORTATION AND UTILITY CORRIDOR LANDS
- AREA STRUCTURE PLAN
- CITY LIMITS
- STUDY AREA BOUNDARY

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MAP NO. 2

JUNE 1983

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The second recommendation of significance is for a sector shopping centre of about 7.3 hectares (18 acres), located at the intersection of Country Hills Boulevard and the primary collector east of Sarcee Trail.

2.4 Calgary North Policy Report

The Calgary North Policy Report was approved by City Council in July, 1980, subject to the following amendments:

1. that the boundaries of Calgary North be Deerfoot Trail, Calgary Parkway (Stoney Trail) and Beddington Expressway;

2. that the land between West Nose Creek and Beddington Expressway be included in the policy area and identified as "Land Under Policy Review";

3. that following a special study, the land identified as undevelopable be studied under the River Valley Management Plan (Calgary River Valleys Plan) and that the developable land be brought back to Council for an appropriate land use within the context of A.S.P. Phase 3 (as identifed in the Calgary North Policy Report).

The "special study" which subsequently was undertaken resulted in the Policy Statement for Lands South of West Nose Creek Identified as "Under Policy Review" in the Calgary North Policy Report, approved by City Council on December 7, 1981. That policy statement recommended:

> "that the lands in Cell C [that part of the Special Study area located in Crowchild 4] between Simons Valley Road and the 30 metre setback line [from West Nose Creek] be recognized as developable and be designated for future urban uses in the Calgary North Policy Report, with detailed planning to occur within the Crowchild 4 Area Structure Plan."

Subsequent to that recommendation, the Transportation Department approved a realignment of Beddington Trail closer to West Nose Creek, thereby limiting the development potential of these lands.

2.5 Calgary River Valleys Plan (Proposed)

The proposed Calgary River Valleys Plan (C.R.V.P.), currently under consideration by City Council, sets guidelines for development on lands located adjacent to watercourses. The C.R.V.P. has proposed that the section of the West Nose Creek Valley in Crowchild 4 be designated as a regional park. A development setback of either 30 metres (100 feet) from the edge of the watercourse, or the floodway plus 6 metres (20 feet), whichever is greater, is required.

Additionally, the following guidelines are suggested:

- continuous public access to all creek banks;
- the provision of suitable landscape buffers between the watercourse and adjacent land uses, where necessary, and
- the avoidance of future land uses along the creek which would have an adverse environmental impact.

Certain of these policies have been adopted by City Council in the context of other documents, particularly the Calgary General Municipal Plan and the Parks/Recreation Department Policy and Systems Plan (October, 1981).

Development in Crowchild 4 will be required to observe the regulations and policies outlined in the River Valleys Plan at such time as it is approved by City Council.

2.6 Transportation and Utility Corridor/ Restricted Development Area

The Transportation and Utility Corridor (T.U.C.) is a strip of land nominally 0.8 kilometer (one-half mile) in width, that circumscribes much of the city. Its present disposition in the vicinity of Crowchild 4 is indicated on Map 5. The primary purpose of the T.U.C. is to accommodate a ring road (of which Stoney Trail is the northwest segment) together with pipelines, power lines, local utilities and municipal services. Secondary land uses appropriate within the T.U.C. will be subject to guidelines approved by Alberta Environment.[1]

As Alberta Environment acquires lands for the T.U.C. the boundaries are generally rationalized in accordance with functional right-of-way requirements. On this basis it now appears that a substantial area of the Corridor adjacent to Crowchild 4 (255 hectares/633 acres) may be surplus to the requirements of the Corridor, and eventually may be released for urban development purposes.

A portion of the study area which was annexed to the city in 1979 was released from the Restricted Development Area (R.D.A.) at the time of annexation. The remainder of the study area within the city was never part of the R.D.A., while the part located outside the city remains within the R.D.A., and would have to be released, in the event of annexation of these lands, before any plans for urban development could be approved on those lands.

2.7 Calgary International Airport Vicinity Protection Area Regulation

The Calgary International Airport Vicinity Protection Area Regulation (Alberta Regulation 318/79) identifies land uses that are permitted within the various Noise Exposure Forecast (N.E.F.) contours that surround the airport, and prescribes construction standards that must be adhered to within the various N.E.F. areas. The Regulation also embodies various restrictions necessary to protect flight control facilities.

1. I.D. Systems Ltd.; Calgary and Edmonton Transportation and Utility Corridors: Secondary Land Use Study Interim Report; June, 1982.

The easternmost portion of the study area is located within the 25-30 N.E.F. zone, as illustrated in Map 5. Although the Regulation does not preclude residential development within this zone, the soundproofing of residential buildings is required, in accordance with Canada Mortgage and Housing Corporation standards.

2.8 City of Calgary Transportation System By-law

The City of Calgary Transportation System By-law (3M82) serves to define an overall transportation system concept for the city. It designates expressways/freeways, major roadways and the general alignments of rapid transit facilities in the city, and thereby establishes the external roadway system for Crowchild 4. This system, as shown in Map 7, constitutes the structural framework for land use planning in the study area.

2.9 Surface Transportation Noise Policy

The Surface Transportation Noise Policy, approved by City Council on April 25, 1983, establishes guidelines for mitigating surface transportation noise where it affects residential development. These guidelines include such measures as noise attenuation barriers, berms and development setbacks, and shall be incorporated, where appropriate, in the planning of the area.

2.10 Policy on Stormwater Retention Lakes

Development on lands located adjacent to the MacEwan stormwater retention lake, or any other stormwater retention lake developed in Crowchild 4, shall conform to the guidelines established in the city's Policy on Stormwater Lakes as approved by City Council in June, 1981.

3. STUDY AREA CHARACTERISTICS

3.1 Natural Features

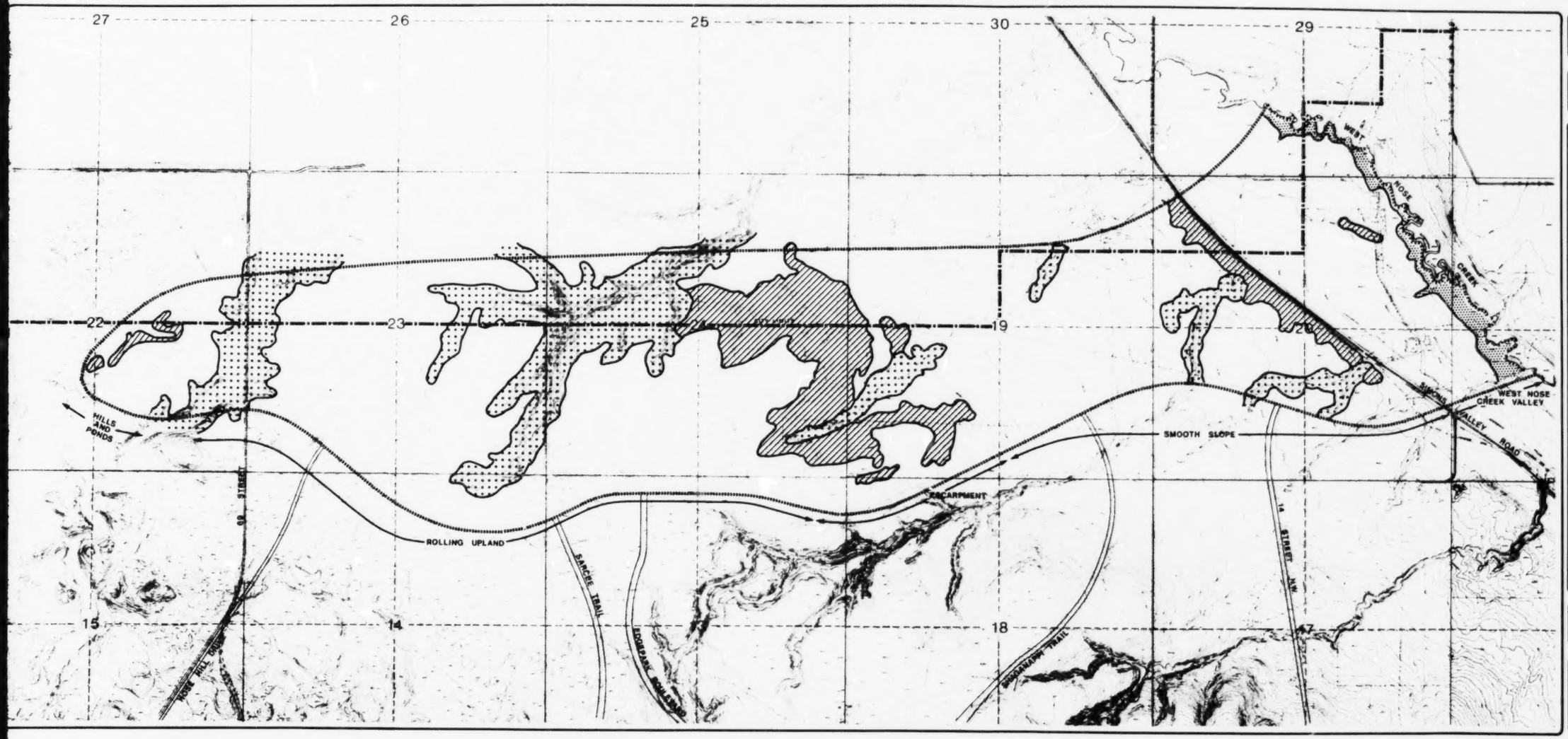
3.1.1 Topography and Drainage

Topographic relief in the study area is characterized by six major landform units, which are described below and illustrated on Map 3:

- The West Nose Creek valley, located in the eastern part of the study area, is composed of the creek channel and a flat, two-level river terrace. The valley wall escarpment is located immediately west of Simons Valley Road. The slopes are generally from 16 to 20 percent, with a maximum height of 14 metres (46 feet).

- A smooth to gently undulating slope separates the centrally located escarpment from the West Nose Creek valley.

- A series of ravines leads from the upland in an easterly direction to the West Nose Creek valley. These ravines cut through the steep escarpment slopes, the smooth slope and the West Nose Creek valley wall. The ravines are major topographic features, with slopes of 22 percent or greater, and provide both aesthetic and recreational opportunities to the area. The large, broad ravine which divides Cell C is unique to Calgary. This ravine is characterized by steep slopes in excess of 22 percent, and a flat floor varying from 50 to 160 metres (165 to 525 feet) in width.



CROWCHILD 4

LANDSCAPE FEATURES

- RAVINE
- STEEP SLOPES
- TENTATIVE 1:100 YEAR FLOOD LIMIT OF WEST NOSE CREEK

THE CITY OF CALGARY PLANNING DEPARTMENT

MAP NO. 3

JUNE 1983

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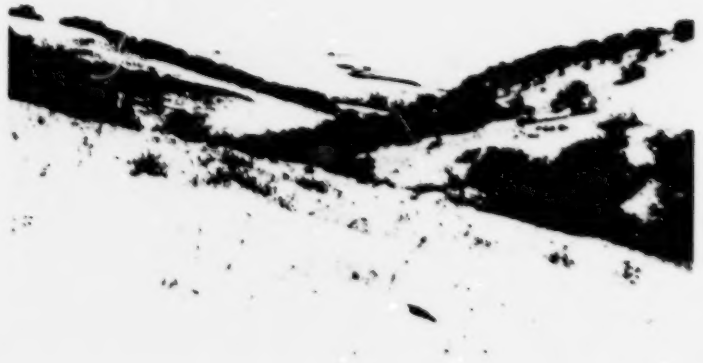
- Central to the study area is a large, steep escarpment which separates the upland plateau from the West Nose Creek valley. Its slopes range from 13 to 25 percent. The escarpment is approximately 2.4 kilometres (1.5 miles) in length, and has a maximum height of 76 metres (250 feet).

- A rolling upland plateau is located west of the major escarpment. Topographic relief within that feature is limited to small hills of up to 6 metres (20 feet) in height, and steep ravine slopes.

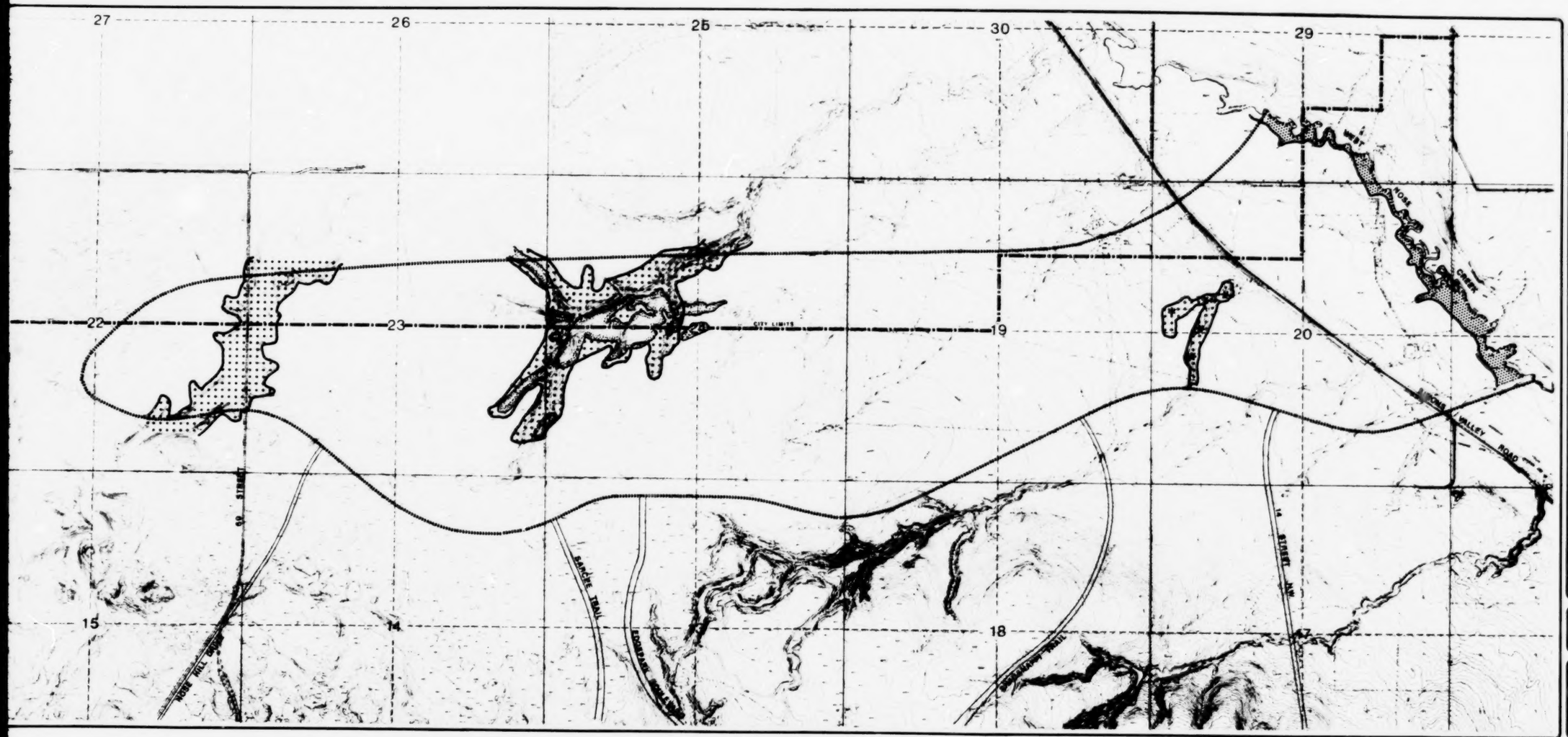
- The western extremity of the study area contains numerous small hills of up to 10 metres (33 feet) in height, and ponds distributed in a complex pattern. The slopes are short, steep and discontinuous. This hummocky terrain is the leading edge of a much larger topographic unit extending west beyond the city limits.



The majority of the study area is well drained. The large ravines permit storm water to seep into the subsoil and bedrock, with a portion of the storm water draining to the West Nose Creek valley. The valley itself is generally well drained with few temporary ponds. The flow of West Nose Creek varies from just a trickle in dry seasons, to serious flood levels during wet periods. The 1:100 year flood limits of West Nose Creek have been tentatively delineated by Alberta Environment[2], as shown on Map 3. These tentative flood limits are subject to review by Alberta Environment and the City.

The upland plateau contains a few small ponds and seasonal sloughs, none of which offers either special opportunities or serious constraints to urban development.

2. Hydrocon Engineering (Continental) Ltd.; Nose Creek Floodplain Study; September, 1980.



CROWCHILD 4

ENVIRONMENTALLY SENSITIVE AREAS

- SIGNIFICANT TREES & SHRUBS
- HIGH QUALITY RAVINES
- TENTATIVE 1:100 YEAR FLOOD LIMIT OF WEST NOSE CREEK
- * GLACIAL ERRATIC

THE CITY OF CALGARY PLANNING DEPARTMENT

MAP NO. 4

JUNE 1983

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3.1.2 Soils and Geology

Soils in the West Nose Creek valley are a mixture of loam, sand, silt, clay and gravel. Bedrock is located within five metres of the surface, and is exposed in a few locations along the creek channel.

West of Simons Valley Road, for a distance of about one kilometre, the soils are moderately deep silts and clays on silt-till. In a few areas, bedrock is present within a few metres of the surface.

Most of the steep slopes and the rolling upland plateau are composed of deep loams and silts on sand, clay and gravel. Bedrock is exposed in the bottom of the deepest ravines. In the hummocky terrain of the western portion of Cell C, thin loams cover deep silt, clay, sand, buried gravel and boulders.

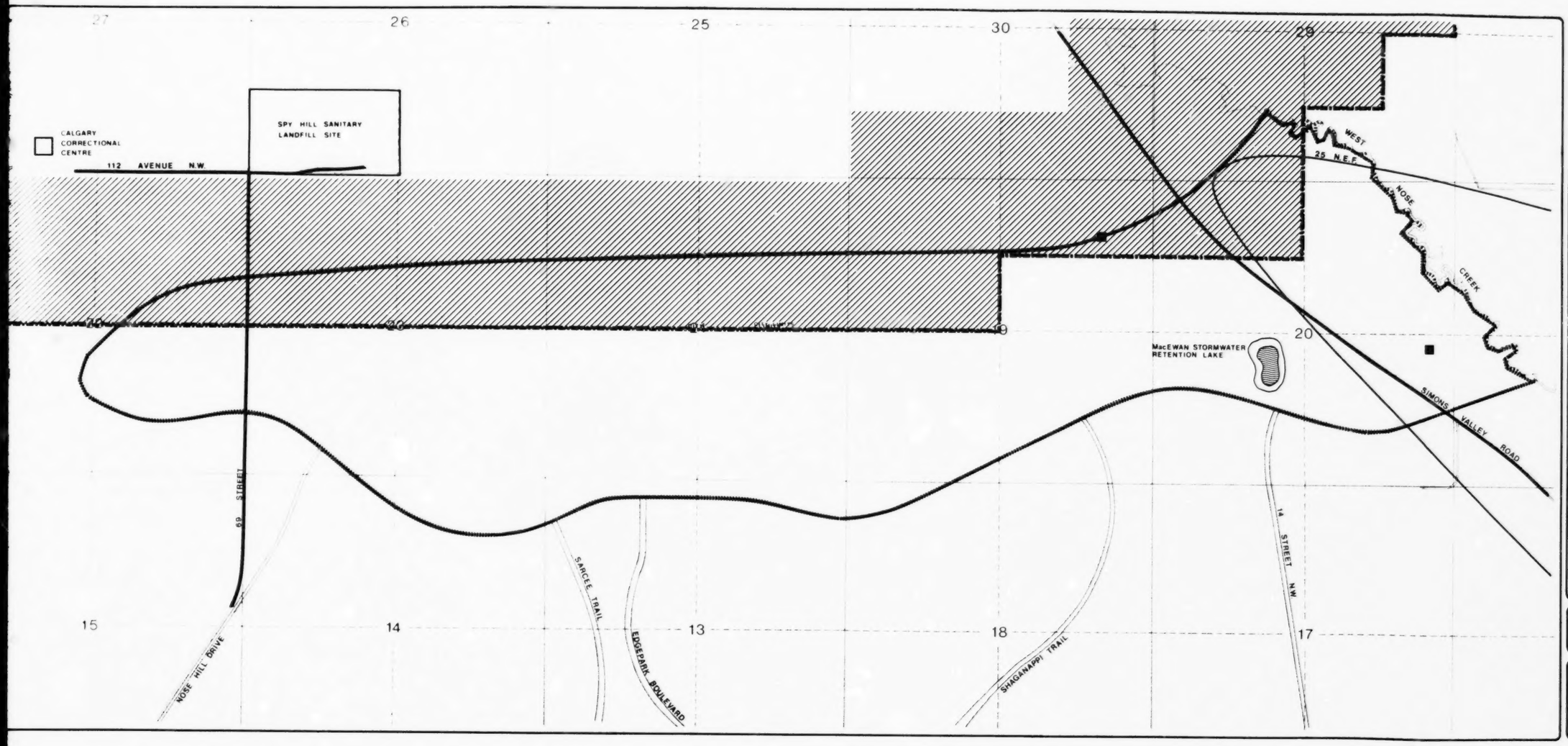
In summary, the shallow depth of bedrock in limited parts of the study area, and silty soil, which is susceptible to frost heaving, could impose moderate constraints to development.

3.1.3 Environmentally Sensitive Areas

Environmentally sensitive areas in Crowchild 4 are those associated with the high quality ravines, glacial erratics and the tentative West Nose Creek 1:100 year flood limit, as shown in Map 4. These areas provide high quality habitats for trees, shrubs and animals (deer, coyotes, porcupines, badgers, skunks, weasels, hawks, owls and songbirds). Great blue herons, shorebirds and waterfowl use the creeks and ponds in the area. Extensive grading for the construction of major transportation facilities and utility easements will likely result in the loss of some open space in the ravines and in the West Nose Creek valley, and the consequent disruption of wildlife habitats.

3.1.4 Views

The Crowchild 4 study area encompasses a variety of attractive views. Among the most interesting are the hummocky terrain, the escarpment, and the large ravines which link the upland to the West Nose Creek valley. Panoramic views of the City and the mountains in the distance are visible from the higher elevations.



CROWCHILD 4

EXISTING LAND USE & ROADWAY PATTERN

- ROADS
- COUNTRY RESIDENCES
- NOISE EXPOSURE FORECAST CONTOUR
- TRANSPORTATION AND UTILITY CORRIDOR
- AGRICULTURAL AND OPEN SPACE
- CITY LIMITS
- STUDY AREA BOUNDARY

THE CITY OF CALGARY PLANNING DEPARTMENT

MAP NO. 5

JUNE 1983

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3.2 Historical Resources

Alberta Culture considers the study area to be highly significant in terms of archaeological and historical resources.

Historical impact assessments shall be required prior to outline plan approval. Conservation and salvage measures, if needed, shall be carried out by the developer in accordance with the requirements of Alberta Culture. At the request of Alberta Culture, the locations of sites have not been shown in the Area Structure Plan.

Certain parts of the study area may have been studied for historical resources. Alberta Culture can identify those areas which will or will not require investigation.

3.3 Existing Land Use and Roadway Pattern

Existing land use within Crowchild 4, as shown on Map 5, is almost exclusively agricultural (more specifically, the grazing of livestock and cultivation of fodder crops). The Canada Land Inventory (C.L.I.) ratings of "soil capability for agriculture" indicate that lands within the study area generally suffer from "moderately severe" to "severe" limitations to agricultural production, which is poor in comparison to a large proportion of the lands in the greater Calgary area.

Two roadways cross the study area at the present time; Simons Valley Road (Secondary Highway 772) and 69 Street N.W. These roads will be kept open to traffic until such time as alternative routes are constructed in accordance with this Area Structure Plan.

The MacEwan stormwater retention lake, located northwest of the future 14 Street/Country Hills Boulevard intersection in Cell A, has already been constructed. The lake has a normal surface area of two hectares (five acres), and is intended to serve the MacEwan Glen subdivision in Crowchild 3 as well as a small part of Cell A in Crowchild 4.

PART 2 THE PLAN

4. LAND USE

4.1 General Concept

The land use plan, as shown in Map 6, represents an extension of the predominantly residential pattern of development already established in the Crowchild 3 area to the south. Northerly extensions of Shaganappi Trail and Sarcee Trail divide the area naturally into three development cells, each of an appropriate size to support a full range of community facilities and services.

The plan allows for the possibility that the "surplus" lands within the Transportation and Utility Corridor will be released for general urban development, and will be annexed to the city some time within the next few years. Should this not occur, the plan would need to be amended with respect to the general configuration of internal collector roads and the number and locations of joint use sites.

In addition to residential and community services, the plan includes three elements of area-wide significance--a major recreation/education centre (public high school and regional athletic park) in the northern part of Cell A, a sector shopping centre and an office/business park, both located in Cell B. The major ravines in each of the three cells are designated as open space features, an 18-hole golf course being a possible use within the ravine in the northern part of Cell B.

4.2 Residential

In accordance with General Plan Policy H.22, which encourages increased population densities in residential areas throughout the city, an average density higher than the standard 22 persons per acre shall be aimed for in Crowchild 4. However, capacity limitations in the sanitary sewer system place an upper limit of approximately 20 units per hectare (8.1 units per acre) on the achievable residential density in each development cell. Accordingly, an average density in the range of 17.0 to 20.0 units per gross residential hectare (6.9 to 8.1 units per gross residential acre) has been established for each cell, roughly equivalent to between 22 and 26 persons per gross acre. The population capacity for each cell would thus be as shown below:

CELL	Gross Residential Area		Population Capacity*	
	Hectares	Acres	Minimum	Maximum
A	269	665	14,900	17,500
B	267	660	14,800	17,300
C	198	489	10,900	12,800
TOTALS	734	1,814	40,600	47,600

* These estimates are based on an assumed average occupancy rate of 3.24 persons per dwelling unit.

Residential densities above 20 units per hectare will be appropriate for specific sites, particularily along the collector road system. The distribution of density throughout each cell shall be established through the outline plan process.

In accordance with General Plan Policy H.30, residential development should provide for a wide variety of housing types, including both single-family and multi-family units. It is an objective of this Area Structure Plan to achieve a mixture of housing types within each of the three development cells.

Residential development adjacent to areas identified as "open space" in Map 6 should be designed so as to enhance the visual amenity of these public areas.

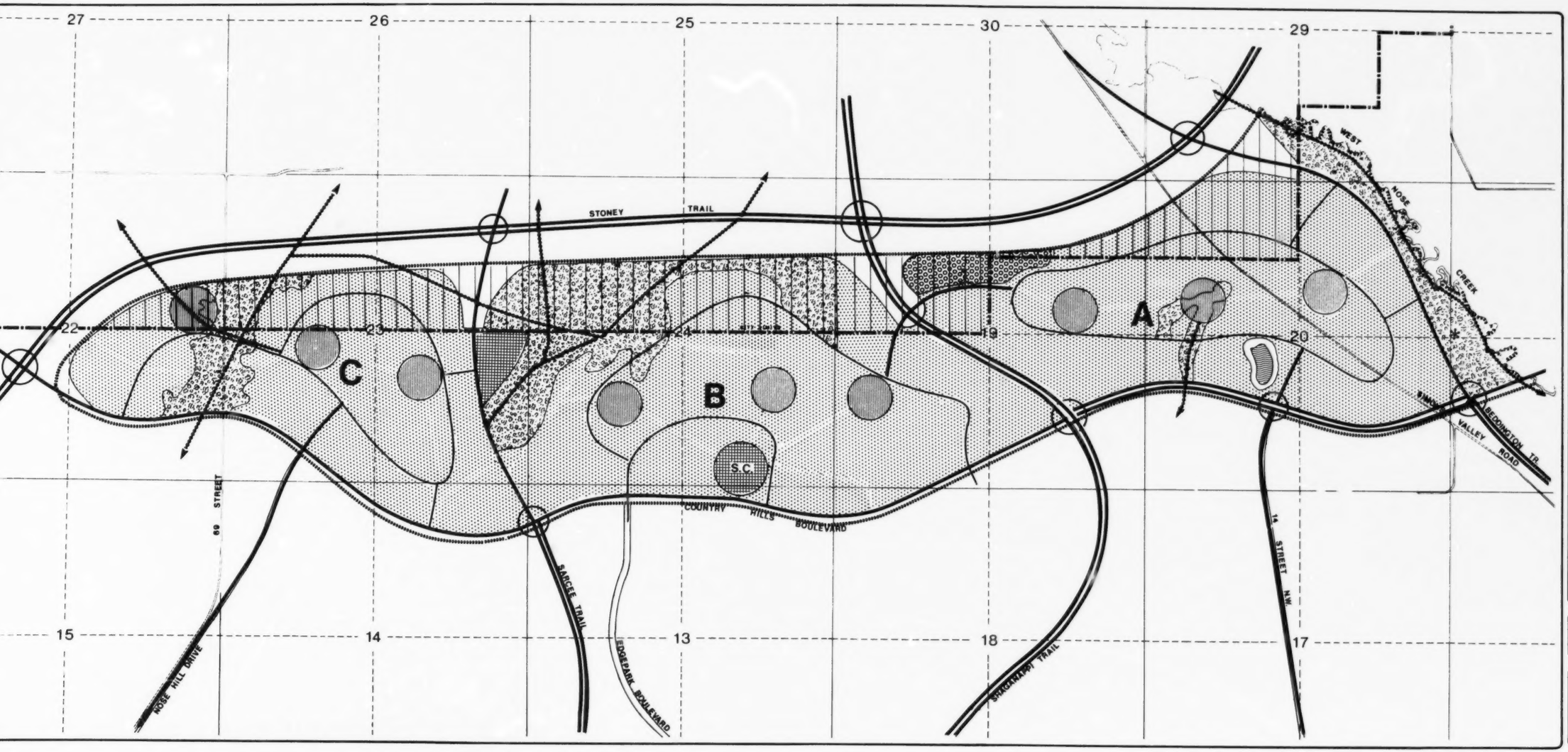
Finally, because the elevation and consequent exposure of much of the study area results in a more severe winter climate here than in most other areas of Calgary, every possible attempt should be made to ameliorate these conditions through careful subdivision design.

4.3 Joint Use Sites

A total of nine joint use sites will be required throughout Crowchild 4 to accommodate future elementary and junior high schools and community centres. The Calgary Board of Education and the Calgary Separate School Board have determined the need for three such sites in each of the three development cells, to be located generally as shown in Map 6.

The central joint use site in each cell will have space set aside for a community centre. The joint use site in the centre of Cell A should be located on either side of the ravine, rather than in the ravine as depicted conceptually on Map 6.

The size and specific location of these joint use sites shall be established through the outline plan process. Each outline plan shall include a map showing the locations of all joint use sites within that particular cell.



CROWCHILD 4

LAND USE PLAN

- RESIDENTIAL
- JOINT USE SITES
- EDUCATION RECREATION CENTRE
- SECTOR SHOPPING CENTRE
- OFFICE BUSINESS PARK
- OPEN SPACE
- REGIONAL PATHWAYS
- STORMWATER RETENTION LAKE
- A DEVELOPMENT CELLS
- SURPLUS TRANSPORTATION AND UTILITY CORRIDOR LANDS
- * AREA SUBJECT TO FURTHER STUDY

THE CITY OF CALGARY PLANNING DEPARTMENT

MAP NO. 6

JUNE 1983

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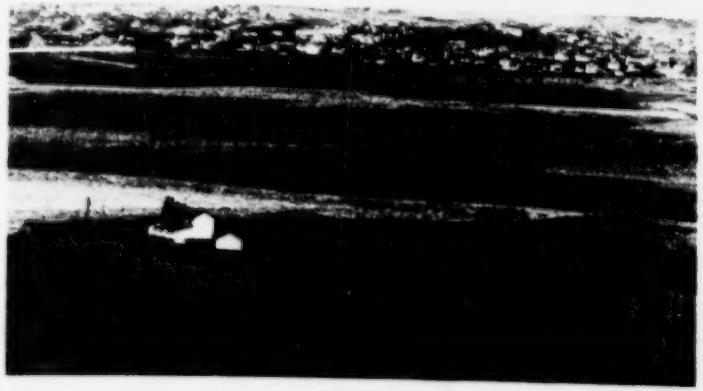


4.4 Education/Recreation Centre

A site for an education/recreation centre has been identified in the northwest corner of Cell A, adjacent to the Transportation and Utility Corridor. This centre will contain a public senior high school adjacent to, and integrated with, a regional athletic park.

The total site area required has not yet been determined, and it is anticipated that neither of these facilities will be required until such time as the Crowchild 4 area is fully developed. This particular site offers the possibility, subject to further investigation, of extending the playing fields and parking areas required by both facilities into the "buffer" and "distribution services" areas of the Transportation and Utility Corridor right-of-way as "secondary" uses, in accordance with policies as adopted by Alberta Environment.

4.5 Retail Commercial

The land use plan (Map 6) proposes a sector shopping centre to be located adjacent to Country Hills Boulevard within Cell B. This site is more or less central to the Crowchild 4 area. However, its primary market area will undoubtedly overlap with that of the approved Edgemont sector centre in the southeast corner of the Sarcee Trail/Country Hills Boulevard interchange in the Crowchild 3 area. Alternative locations on either side of Shaganappi Trail south of the future Stoney Trail interchange (Cells A and B, respectively) were considered for this sector centre, but were rejected because of access restrictions.

The sector centre will likely contain, in addition to a wide range of retail outlets, a variety of office and personal service facilities. As such it will constitute a focal point for the three Crowchild 4 communities. The area will also be within easy access of several regional centres--Market Mall, the proposed Crowfoot Centre and the North Calgary centre (location yet to be decided by City Council).

Neighbourhood shopping centres will be interspersed throughout the study area, preferably located on the collector roads. The specific locations and sizes of these facilities shall be established through the outline plan process, with each outline plan including a map showing the locations of all neighbourhood shopping centres within that particular cell.

4.6 Office/Business Park

Included in the land use plan for the study area is an office/business park located at the western edge of Cell B, adjacent to Sarcee Trail. This parcel lends itself ideally to such a use because of its isolation from the residential areas of Cell B by the ravine. However, the market demand for office space in this location is uncertain at the present time, and it may be necessary to consider alternative land uses for this parcel in the future. In the event that a use other than office/business park is ultimately decided upon, an amendment to this Area Structure Plan shall be a prerequisite to outline plan approval and/or land use redesignation.

4.7 Open Space

The open space concept illustrated on Map 6 focuses on those physical features which provide recreational opportunities in the study area. Among these features are the West Nose Creek valley and the ravines within each of the development cells. The principal components of the open space system are described below:

4.7.1 Parks

The lands located at the eastern edge of Cell A between Beddington Trail and West Nose Creek will be part of a larger regional open space system to be developed by the City within the valley. This open space feature will consist of a number of activity nodes (playing fields, day use sites, etc.), inter-connected by pathways. However, portions of this area adjacent to Beddington Trail may be suitable for other forms of urban development, subject to further study to be undertaken by applicants, to the satisfaction of the Approving Authority, at the time of outline plan submission.

Requirements for tot lots and decorative parks within the residential communities shall be established through the outline plan process.

4.7.2 Pedestrian/Bicycle Pathways

A network of pedestrian/bicycle pathways shall be developed within Crowchild 4, providing links between residential neighbourhoods, open space areas, joint use sites, shopping centres and the regional pathway network.

The proposed regional pathway connections are illustrated conceptually on Map 6. Specific alignments of all pathways shall be established at the outline plan stage.

4.7.3 Golf Course

An 18-hole golf course has been identified as a possible use within the area designated for open space in the northwest corner of Cell B. This facility would likely encompass lands located within part of the major ravine, as well as lands north of the ravine that otherwise cannot be developed due to access restrictions. The possibility of extending the golf course into the "buffer" and "distribution services" areas of the T.U.C. right-of-way as a "secondary" land use also merits further investigation.

5. TRANSPORTATION

5.1 Development Constraints

The Northwest Roads Study, approved by City Council in 1976, assumed a maximum population of 168,000 within the northwest sector. On this basis the following transportation improvements were recommended:

- Completion of Stoney Trail (Northwest By-pass) from the Trans Canada Highway across the Bow River to 85 Street N.W. (Nose Hill Drive).
- Upgrading of Crowchild Trail N.W. to a six-lane "free flow" expressway, with all intersections grade-separated, from Memorial Drive to the present city limits.
- Completion of the Northwest Light Rail Transit line from downtown to 53 Street N.W.

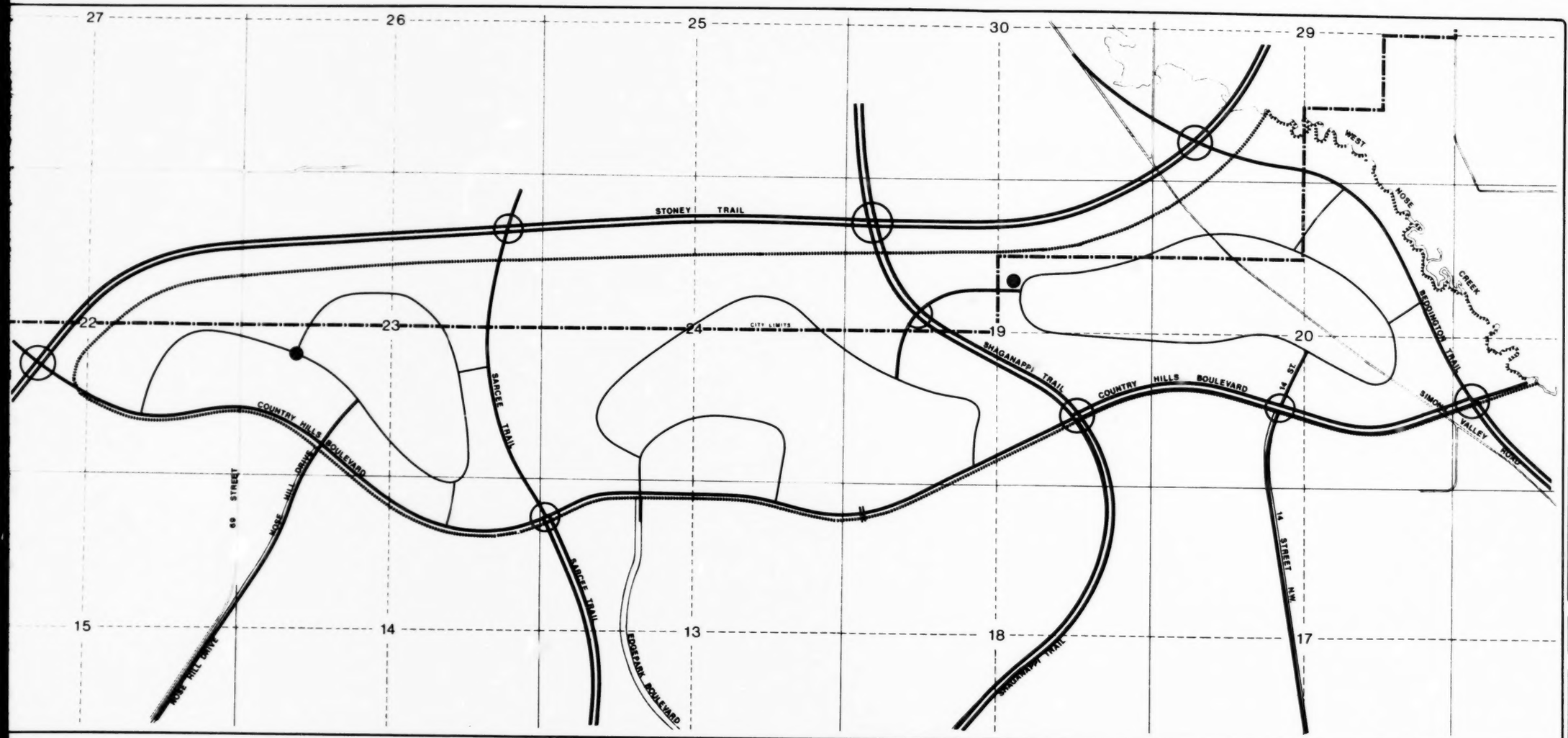
Inasmuch as a population of approximately 160,000 has already been committed through approved Area Structure Plans, and none of the above improvements has yet been implemented, there is no residual capacity in the transportation system to accommodate development in Crowchild 4. In addition to the improvements identified above, the extension of Shaganappi Trail and/or Sarcee Trail across the Bow River would be required to provide sufficient capacity to accommodate development in Crowchild 4 beyond a population of 8,000 without risking severe traffic congestion.

In considering whether or not to approve land use applications within Crowchild 4, City Council will thus have three basic options from which to choose:

1. Approve the development and, concurrently, approve the necessary improvements to the transportation system.
2. Refuse approval of the development, thereby forestalling the need for transportion improvements.
3. Approve the development, but defer approval of the necessary transportation improvements. This decision would be expected to result in high levels of traffic congestion, particularly in the Crowchild Trail corridor. The increased congestion will affect the entire northwest area, not just Crowchild 4.

5.2 External Roadway Network

The external roadway network serving the Crowchild 4 area, shown conceptually on Map 7, provides the area with good access to all parts of the city. Stoney Trail on the north, to be constructed by the Province, will be built to freeway standards. Shaganappi Trail is proposed to extend through the area as an expressway, as is Country Hills Boulevard from Shaganappi Trail to Beddington Trail. Construction of expressways is the responsibility of the City, and as yet no commitments have been made as to timing of construction for these routes, or for construction of Stoney Trail.



CROWCHILD 4

TRANSPORTATION SYSTEM

- FREEWAY OR EXPRESSWAY
- MAJOR ROAD
- PRIMARY COLLECTOR OR COLLECTOR
- INTERCHANGE
- BUS TURNAROUND
- PEDESTRIAN OVERPASS
- CITY LIMITS
- STUDY AREA BOUNDARY

THE CITY OF CALGARY PLANNING DEPARTMENT

MAP NO. 7

JUNE 1983

0 500 1000m

Sarcee Trail and Beddington Trail, from Country Hills Boulevard to Stoney Trail, as well as Country Hills Boulevard from Shaganappi Trail to Stoney Trail, are all designated as major roads. Construction of major roads is the responsibility of the land developer, and thus the timing is generally dependent upon the timing of development.

Each of the external roadways identified above is discussed in more detail below:

5.2.1 Country Hills Boulevard

Country Hills Boulevard will constitute a major east-west thoroughfare across the northern extremity of the city from Stoney Trail in the west to Deerfoot Trail in the east. Its primary function within Crowchild 4 will be to distribute traffic to the major north-south routes linking the study area with the downtown and other sectors of the city to the south. In addition, it will provide access to Highway 1 (Trans-Canada) to the west and the Calgary North area, Calgary International Airport and Highway 2 to the northeast.

Country Hills Boulevard is designated as a major road from Stoney Trail to Shaganappi Trail, and as an expressway from Shaganappi Trail to Beddington Trail. Grade-separated interchanges are planned at Stoney Trail, Sarcee Trail, Shaganappi Trail, 14 Street and Beddington Trail, with at-grade intersections at Nose Hill Drive and the various collector roads providing access to both the Crowchild 3 and 4 areas.

5.2.2 Beddington Trail

Beddington Trail will follow the West Nose Creek valley all the way from Deerfoot Trail to Stoney Trail and beyond. Because it will tie into Secondary Highway 772 (Simons Valley Road) to the north, it will carry both local and regional traffic. It will serve as a major access route from Crowchild 4 to Deerfoot Trail south.

Beddington Trail is designated as a major road north of its intersection with Country Hills Boulevard through Crowchild 4, and as an expressway to the south of that point. Grade-separated interchanges are proposed at both Country Hills Boulevard and Stoney Trail, with at-grade intersections providing access into Cell A.

5.2.3 14 Street N.W.

14 Street N.W. is designated as a major road, providing access from Crowchild 4 to the downtown. It will terminate in Cell A, to the north of its interchange with Country Hills Boulevard. The ultimate design of the interchange of 14 Street and Country Hills Boulevard has not yet been determined.

5.2.4 Shaganappi Trail

Shaganappi Trail is designated in the Transportation System By-law as an expressway to the south of Country Hills Boulevard, and as a major road to the north of that route. However, the Transportation Department has indicated that in order to accommodate the transportation requirements of possible future development to the north, a more suitable designation for Shaganappi Trail as far north as Stoney Trail would be expressway. Consequently the Transportation System By-law will have to be amended accordingly when it is next reviewed.

Grade-separated interchanges are proposed at both Country Hills Boulevard and Stoney Trail. A third interchange is proposed for an east-west major stub connecting to the internal collector roads within Cells A and B. Because of design constraints this interchange will provide access to and from the south only.

5.2.5 Sarcee Trail

Sarcee Trail is designated as an expressway to the south of Country Hills Boulevard, and as a major road to the north of that point. Interchanges are proposed at Country Hills Boulevard and at Stoney Trail. Access will be available directly into the proposed office/business park in Cell B, and via a major stub into Cell C, with at-grade intersections at both locations.

5.2.6 Nose Hill Drive

Nose Hill Drive is designated as a major road, and will terminate in Cell C to the north of its at-grade intersection with Country Hill Boulevard, where it will connect with the collector road loop within that cell.

5.2.7 Stoney Trail

Stoney Trail (Northwest By-pass) will be part of the ringroad that will eventually circumscribe the city. It will be constructed by Alberta Transportation to freeway standards, and will provide the study area with excellent access to all of the city's peripheral areas, as well as to Highway 1 (Trans-Canada Highway) to the southwest and Highway 2 to the northeast.

The timing for construction of this facility in the vicinity of Crowchild 4 has yet to be established. It should be noted also that the alignment and interchange locations as shown in Maps 6 and 7 are tentative, pending final approval by Alberta Transportation.

5.3 Internal Circulation

The internal roadway system, shown conceptually on Map 7, provides an efficient system of circulation within each development cell, and convenient access to the external roadway system. The proposed roadway configuration satisfies the Transportation Department's bus routing requirements for the area. The alignments shown are subject to refinement at the outline plan stage.

5.4 Public Transit

The provision of effective public transit service to Crowchild 4 is dependent upon completion of the collector road network, as shown conceptually on Map 7. In the event that the "surplus" T.U.C. land from the Transportation and Utility Corridor is not annexed to the City, then a revised collector road network must be established as a prerequisite for public transit service, and this Area Structure Plan shall be amended accordingly.

Public transit service to Crowchild 4 will be extended from the south at such time as demand warrants. Feeder bus service is proposed for Cells C and B, whereby buses would follow the collector roads to a turn-around as shown on Map 7. Cell A may be served by mainline transit once an adequate level of demand is demonstrated.

Because of steep slopes, it is not possible to build a collector standard road between the upper and lower elevations of the major escarpment in the southern part of Cell B. To meet the public transit requirements buses will be routed along Country Hills Boulevard, and appropriate measures will be taken to provide pedestrians with access to the bus route. Bus bays will be required at three locations and a pedestrian overpass shall be constructed at the developers' expense across Country Hills Boulevard at a location roughly midway between Sarcee Trail and Shaganappi Trail, as shown on Map 7.

Bus service to the study area will eventually be oriented towards the Northwest and North L.R.T. lines, upon construction of those facilities.

6. UTILITIES AND MUNICIPAL SERVICES

6.1 Water Supply

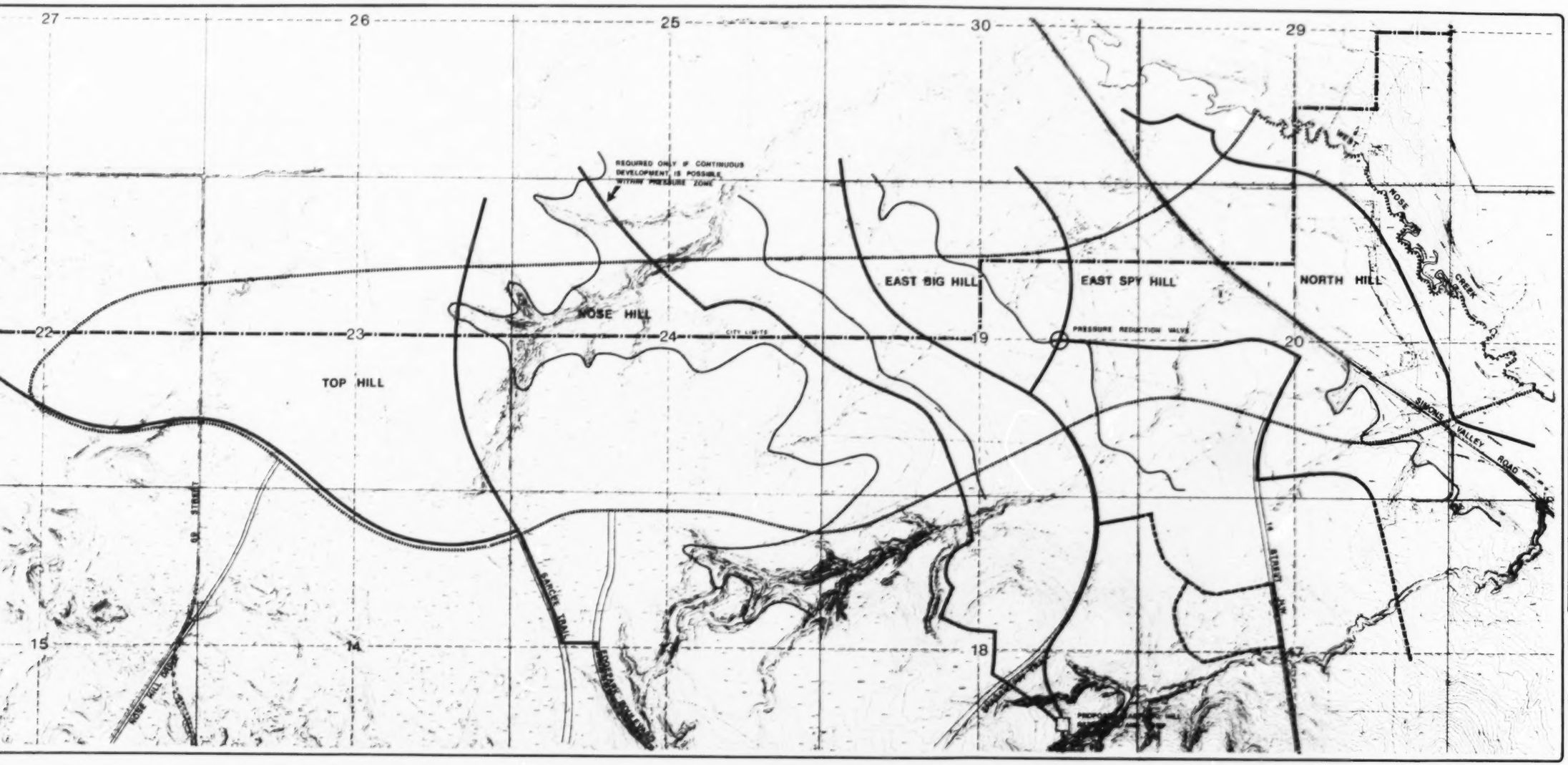
Lands within the Crowchild 4 study area fall within the boundaries of five water pressure zones, as illustrated on Map 8. The following facilities will be required to service each of these zones.

6.1.1 North Hill Zone

The portion of Cell A located between the present alignment of Simons Valley Road and West Nose Creek lies within the North Hill Pressure Zone. The area can be serviced by extending the distribution network from the Sandstone subdivision, and by connecting to the feedermain to be installed along the proposed Beddington Trail right-of-way. The timing for installation of this feedermain has not yet been established.

6.1.2 East Spy Hill Zone

The central portion of Cell A is located within the East Spy Hill Zone. This area can be serviced by a feedermain to be constructed through the area, when required, and by extending the distribution network from the MacEwan and Sandstone subdivisions.



CROWCHILD 4

WATER SUPPLY

- EXISTING FEEDERMAIN
- PROPOSED FEEDERMAIN
- PRESSURE ZONE BOUNDARY
- CITY LIMITS
- STUDY AREA BOUNDARY

THE CITY OF CALGARY PLANNING DEPARTMENT

MAP NO. 8

JUNE 1983

0 500 1000m

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6.1.3 East Big Hill Zone

The western part of Cell A and easternmost portion of Cell B are located within the East Big Hill Pressure Zone. These lands can be serviced by extending the existing distribution system from the MacEwan subdivision, and by connecting to a feedermain to be installed, when required, along the Shaganappi Trail right-of-way. This feedermain will be supplied from the proposed East Big Hill reservoir, which will be connected to the existing West Big Hill pump station by a proposed feedermain along Shaganappi Trail.

6.1.4 Nose Hill Zone

The central portion of Cell B lies within the Nose Hill Pressure Zone. The primary supply will be from a pump station to be constructed at the future East Big Hill reservoir. This scheme requires completion of the reservoir and a feedermain connecting the reservoir to the existing West Big Hill pump station.

A secondary connection is to be provided from the southern section of the Nose Hill zone via an extension of a feedermain which feeds into Edgemont.

Emergency water supplies can be provided by pressure reduction from the Top Hill zone.

6.1.5 Top Hill Zone

All of Cell C and a large portion of Cell B are located within the Top Hill Pressure Zone. This area can be serviced by connecting to a feedermain proposed along the alignment of Country Hills Boulevard. Devlopment in the Top Hill zone is dependent upon construction of the Top Hill reservoir and a feedermain to the existing system in Edgemont.

Ultimately, the primary supply to the Top Hill zone will be by a feedermain to be constructed from a pump station at the West Big Hill reservoir. The supply of water to that reservoir will be reinforced by a direct connection from the Bearspaw Water Treatment Plant.

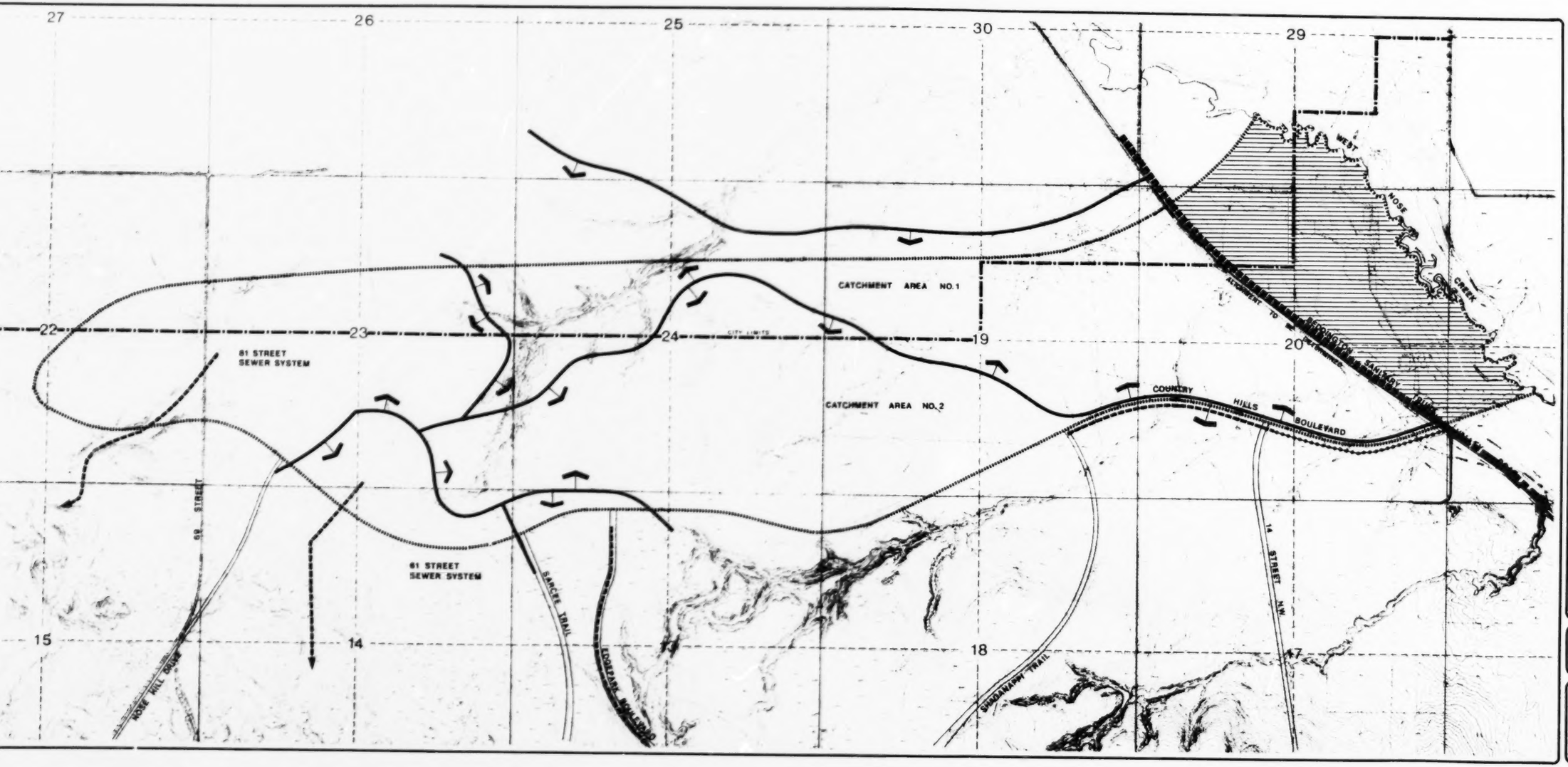
6.2 Sanitary Sewers

The provision of sanitary sewer service to Crowchild 4 will be accomplished by extending existing trunks into the study area from the Crowchild 3 area.

The Beddington primary sewer trunk will be extended through the area, as shown on Map 9. A precise alignment for that extension is not yet defined.

Most of catchment area number 1, as shown on Map 9, can be gravity-serviced by connecting to the Beddington primary sewer trunk. In order to service the land located below the gravity-serviceable limit, a lift station will be required in the area shown on Map 9.

Catchment area number 2 will drain to the Beddington primary sewer trunk via proposed secondary trunk extensions along Country Hills Boulevard, as shown on Map 9.



CROWCHILD 4

SANITARY SEWERS

- EXISTING PRIMARY TRUNK
- PROPOSED PRIMARY TRUNK
- EXISTING SECONDARY TRUNK
- PROPOSED SECONDARY TRUNK
- CATCHMENT AREA BOUNDARY
- AREA REQUIRING SANITARY LIFT STATION

THE CITY OF CALGARY PLANNING DEPARTMENT

MAP NO. 9

JUNE 1983

0 500 1000m

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Two small catchment areas located near the proposed intersection of Sarcee Trail will drain southward to the proposed secondary trunk sewers (61 Street sewer system) in the Edgemont and Hawkwood subdivisions.

The western catchment area can be serviced through an extension of the 81 Street secondary trunk from Crowchild 3, as shown on Map 9.

6.3 Stormwater Management

The Crowchild 4 area encompasses six stormwater drainage basins, as shown on Map 10. Development is not constrained in any of the three western basins which discharge to the Bow River system. However, the three areas which drain to West Nose Creek are subject to Provincial guidelines with respect to stormwater management.[3]

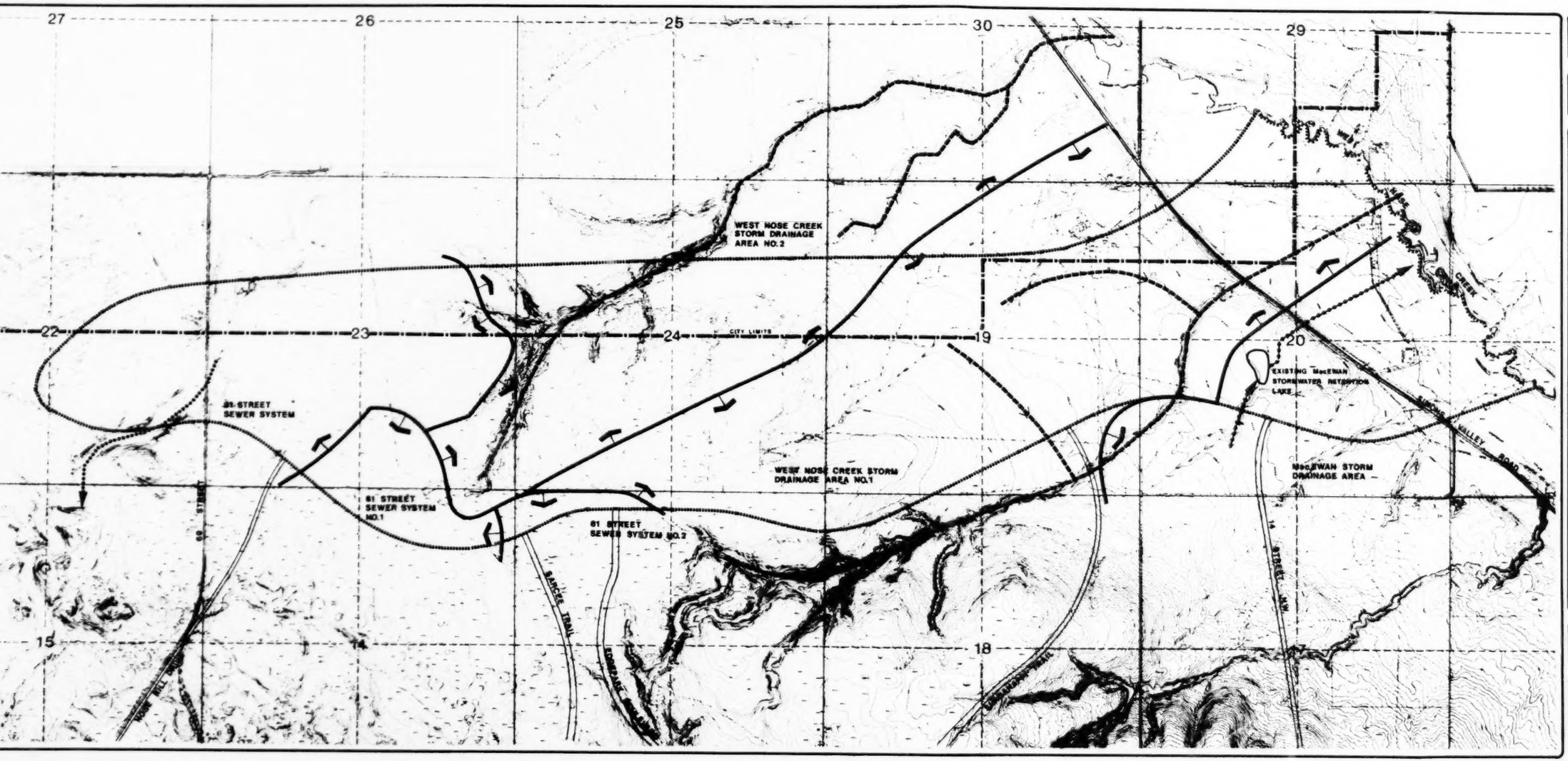
A task force comprised of representatives of the land development industry, the City and the Province has been constituted to review the issue of stormwater discharge into West Nose Creek, and to evaluate alternative stormwater management schemes.

Prior to the approval of any outline plans of subdivision within Crowchild 4, the applicant shall be required to prepare, to the satisfaction of the Subdivision Approving Authority, the City Engineer and the Province, a master plan for stormwater management within that particular drainage basin.

The design of major overland drainage through subdivisions must be resolved prior to or concurrently with the outline plan, and such design shall be subject to approval by of the City Engineer.

The existing MacEwan stormwater retention lake, as shown on Map 10, is part of the MacEwan Glen stormwater management catchment area.

3. Interim Guidelines for Stormwater Discharge into Nose and West Nose Creek, Planning Division, Alberta Environment - February, 1980.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WEST NOSE CREEK STORM DRAINAGE AREA NO.2
CITY LIMITS
EXISTING MacEWAN STORMWATER RETENTION LAKE
85 STREET SEWER SYSTEM
81 STREET SEWER SYSTEM NO.1
81 STREET SEWER SYSTEM NO.2
WEST NOSE CREEK STORM DRAINAGE AREA NO.1
MacEWAN STORM DRAINAGE AREA
BOW VALLEY DRIVE
14 STREET NW
BANFF TRAIL
15
14
18
CROWCHILD 4
STORMWATER MANAGEMENT
EXISTING STORM SEWER
PROPOSED STORM SEWER
PROPOSED STORM DRAINAGE PATTERN
CATCHMENT AREA BOUNDARY
CITY LIMITS
STUDY AREA BOUNDARY
THE CITY OF CALGARY PLANNING DEPARTMENT
MAP NO. 10
JUNE 1983
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6.4 Electrical

The City of Calgary Electric System distribution area extends as far north as the current city limits. Those parts of Crowchild 4 presently located outside the city lie within the TransAlta Utilities service area.

In order to accommodate the projected electrical service demand for Crowchild 4 and surrounding areas, the following additions to the electric system are proposed:

1. Substation number 47 will be located in the Transportation and Utility Corridor (T.U.C.) to the northeast of the study area. Substation number 49 will also be located to the north of Crowchild 4. A third substation is proposed within the T.U.C. to the west of Crowchild 4. These substations will be supplied by a 138 kV sub-transmission line north of the study area.

2. Overhead distribution feeders (13.2 kV and 25 kV) will be extended northward from the Crowchild 3 area to connect with the proposed substations, as shown schematically in Map 11. The specific locations of these feeders will be determined at the outline plan stage.

In summary, the provision of electrical service to the Crowchild 4 area is not likely to present any difficulties unless a non-contiguous (leap-frog) pattern of development occurs, in which case temporary lines would be required, and would be installed at the developer's expense.

6.5 Natural Gas

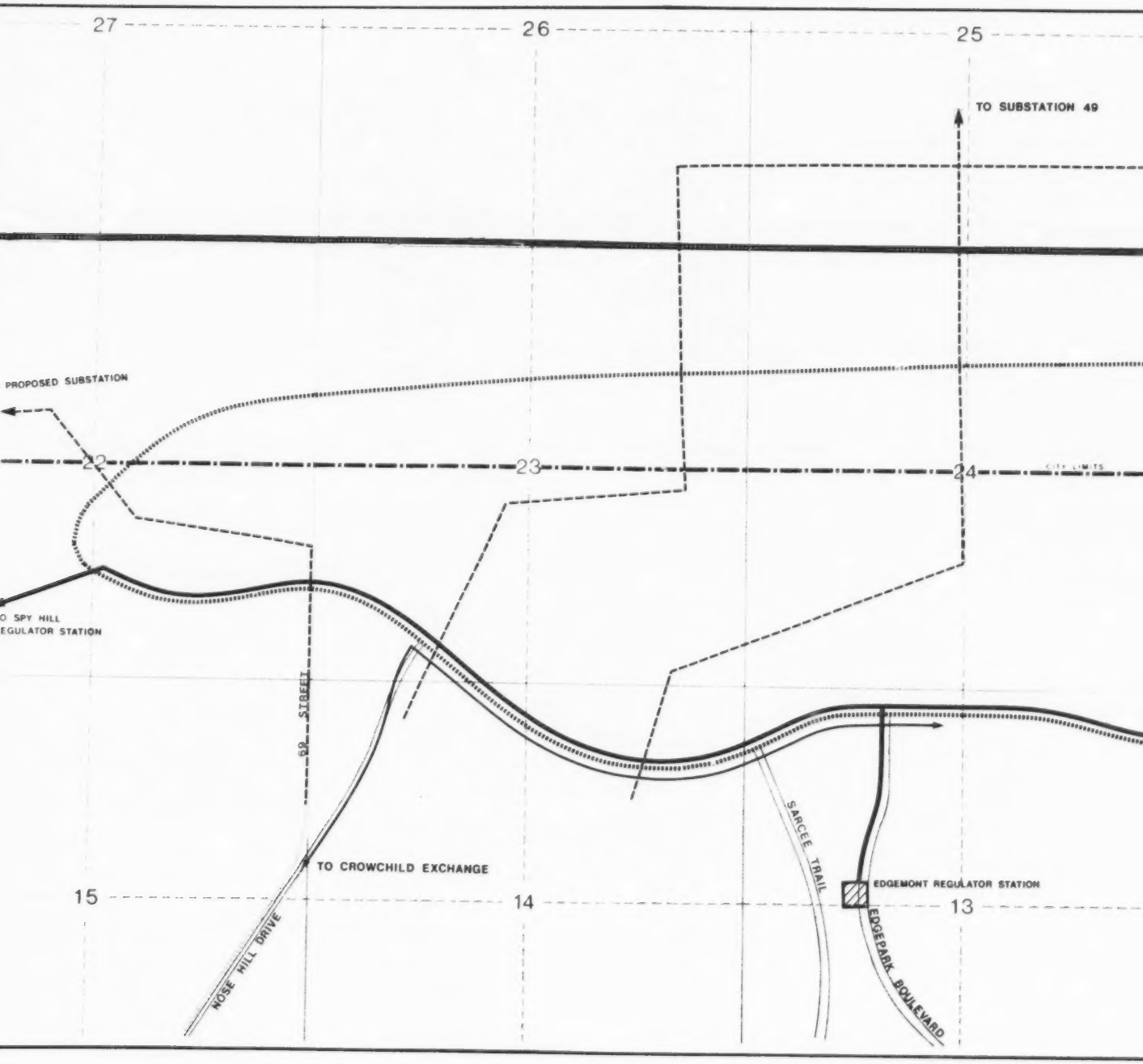
Canadian Western Natural Gas expects to service the Crowchild 4 area by means of an intermediate pressure gas main along the north side of Country Hills Boulevard, as shown on Map 11. Natural gas will be supplied from the existing Spy Hill and Edgemont Regulator Stations, and from a proposed regulator station near the intersection of Country Hills and Harvest Hills Boulevards in Calgary North. This line will be phased in as required.

No major problems in servicing the Crowchild 4 area are anticipated, provided that development is generally phased from south to north in a contiguous pattern.

6.6 Telephone

Cell A is expected to be serviced from Alberta Government Telephones' Huntington Hills Exchange, through the northward extension of an existing duct system along 14 Street N.W. Services will be provided to Cells B and C from the Crowchild Exchange through the extension of an existing duct system northward along Nose Hill Drive to Country Hills Boulevard, and then eastward along the Country Hills Boulevard right-of-way.

No major problems in telephone servicing are anticipated, provided that development is generally staged in a contiguous south to north sequence.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TO SUBSTATION 49
PROPOSED SUBSTATION
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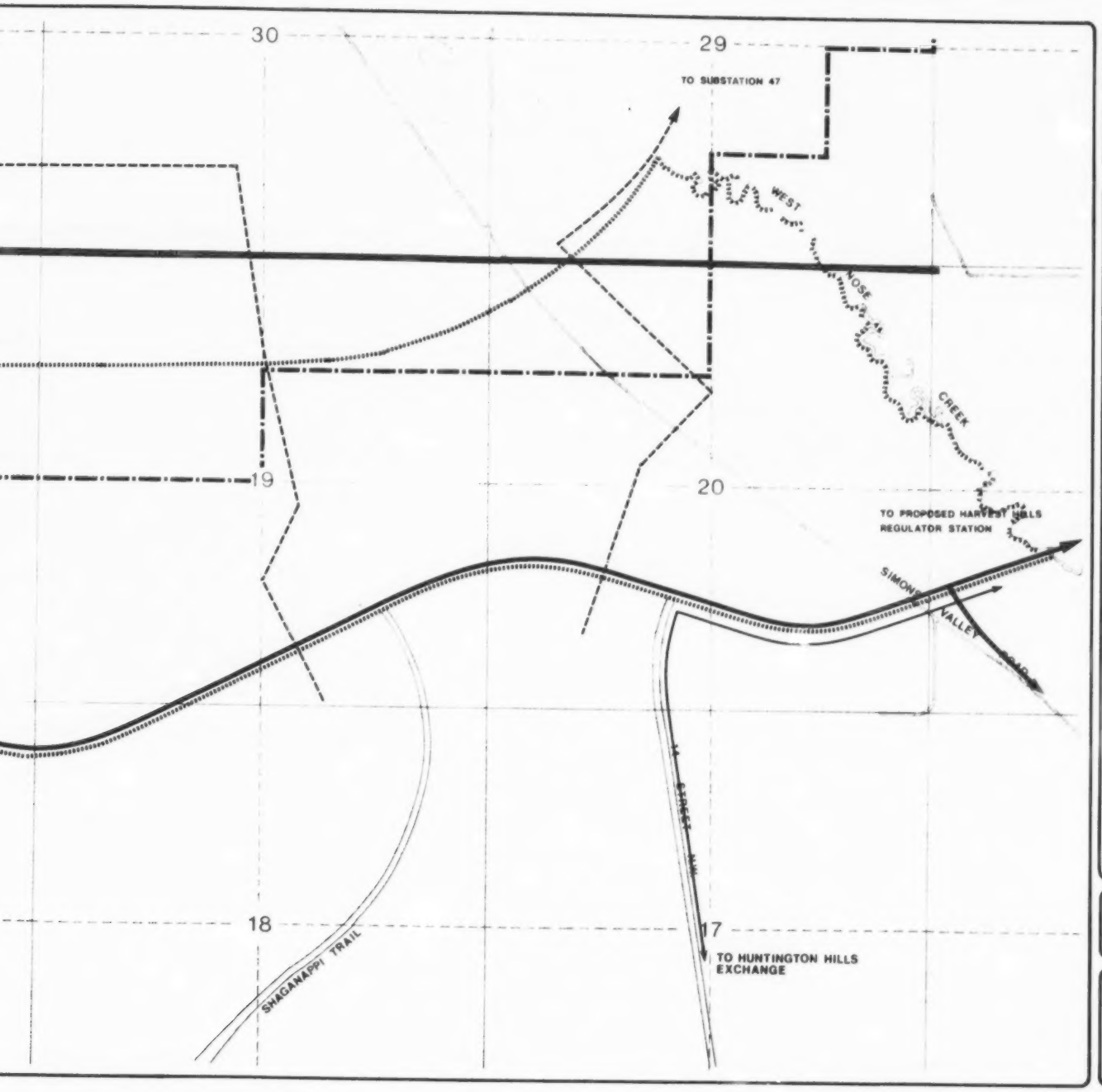
CITY LIMITS
O SPY HILL
EGULATOR STATION
69 STREET
TO CROWCHILD EXCHANGE
SARCEE TRAIL
EDGEMONT REGULATOR STATION
EDGEPARK BOULEVARD
NOSE HILL DRIVE
15
14
13



CROWCHILD 4

UTILITIES

ELECTRIC:

- EXISTING TRANSALTA OVERHEAD 25kV FEEDER
- PROPOSED OVERHEAD FEEDERS (Schematic)

NATURAL GAS:

- PROPOSED INTERMEDIATE PRESSURE GAS LINE
- REGULATOR STATION

TELEPHONE:

- PROPOSED UNDERGROUND FEEDER DUCT

- CITY LIMITS
- STUDY AREA BOUNDARY

THE CITY OF CALGARY
PLANNING DEPARTMENT

MAP NO. 11

JUNE 1983

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7. COMMUNITY SERVICES

7.1 Public Health

Public health services for residents of Crowchild 4 will be provided by the new Calgary Health Services district office in the Ranchlands Shopping Centre.

The nearest existing hospital is the Foothills General Hospital, located approximately six kilometres to the south. When completed, proposed hospitals in the vicinities of the proposed Crowfoot Centre and the Calgary North Town Centre will also serve area residents. The timing for construction of these hospitals has not yet been determined.

7.2 Social Services

The City of Calgary Social Services Department will require a decentralized, multi-purpose social services area office somewhere in the Crowchild 4 area to accommodate juvenile probation officers, community workers and administrative support personnel.

As the population of the area increases, other services (including day care, family counselling, family life education and programs for youth) and group homes will be required.

7.3 Police

The Crowchild 4 area is currently within the City of Calgary Police Department's District 3, which is served by a district office at 4303 - 14 Street N.W. The Police Department's "District Office Location Study", completed in January of 1982, outlines the requirements for new facilities in the city over the next 15 years. That study identifies the need for an additional district office in the vicinity of Nose Hill Drive and Crowchild Trail by 1991. A portion of the Crowchild 4 area will likely be served by the new facility, although district boundaries will not be restructured until after its completion.

7.4 Fire

The Crowchild 4 study area will be served by Fire Stations No. 17, 18 and 21, located at 3740 - 32 Avenue N.W., 415 - 68 Avenue N.W. and 209 Silvergrove Drive N.W., respectively. When completed, proposed stations in the Edgemont and Harvest Hills subdivisions will also serve the area.

The Fire Department will not require any facilities within the Crowchild 4 area.

7.5 Library

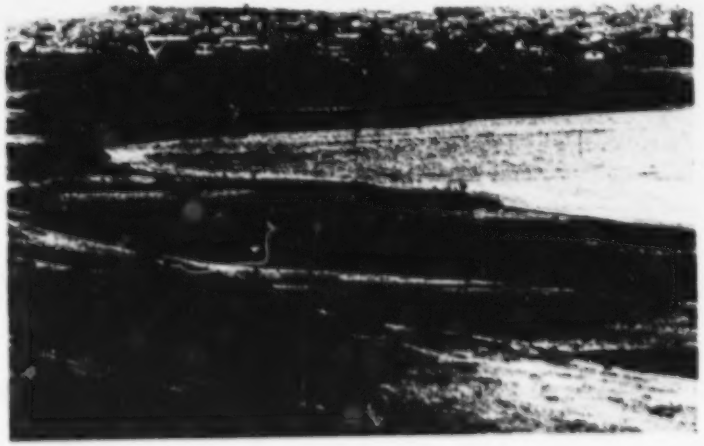
The Calgary Public Library Board anticipates the demand for a small to medium sized branch library within the study area. That facility will likely be located somewhere in Cell B.

A proposed regional reference library, to be located at some future date in the vicinity of Sarcee Trail and John Laurie Boulevard, will also serve residents of Crowchild 4.

8. SEQUENCE OF DEVELOPMENT

Inasmuch as roads, municipal services and utilities to Crowchild 4 will generally be extended from the Crowchild 3 area to the south, development of the area will preferably proceed in a contiguous sequence from south to north. Similarily, development should logically proceed from east to west, although where servicing can be extended easily from the south exceptions to this general rule will be permissible. The timing of development will be dependent upon the availability of services, and in this regard it should be noted that the City of Calgary has not yet made any commitments to extend either water feedermains or sanitary trunk sewers to the north of the proposed Country Hills Boulevard.

Although most of Cell C drains southward towards the Bow River, the remainder of the Crowchild 4 area drains towards West Nose Creek and is thus subject to the interim guidelines adopted by Alberta Environment with respect to stormwater discharge into that creek. Therefore, development approvals within most of Cells A and B shall be contingent upon resolution of a stormwater management scheme acceptable to both the City and the Province.



Transportation capacity restrictions in the northwest sector impose a potential constraint on development of Crowchild 4. Without several major improvements to the system, as outlined in section 5.1 of this Area Structure Plan, future residents of the area can expect to experience heavy congestion on the major traffic arteries leading to and from the area. As outline plans are submitted for approval, City Council will have to decide whether or not it is prepared to commit funds for the necessary transportation improvements or, alternatively, whether or not to allow development to proceed in the event that funding for these improvements is not available.

POOR

QUALITY

ORIGINAL